

ABRAHAMIC SACRED ARCHITECTURE

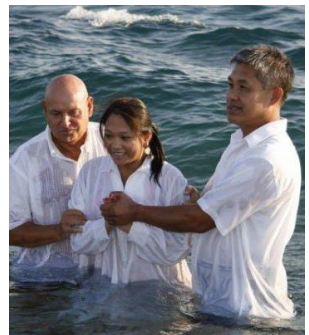
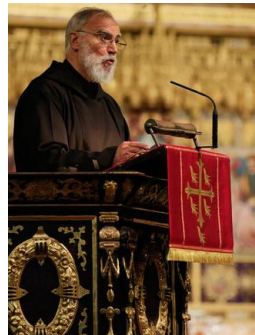
ARC 4110 | Architectural Design Studio V | Prof. Brandon Ro, AIA, NCARB, ICAA

PHASE 1 – PRE-DESIGN

PRE-DESIGN

As we learned in Studio IV, there are times when a project's definition needs additional information. To help provide this information, the architect will perform pre-design services. For your project, you will conduct programming exercises that will require an in-depth study of a religious tradition as well as site evaluation, analysis, and selection. For the pre-design phase, each student will conduct the following research for their own project:

- **Part A – Religion Analysis** (as an Individual)
- **Part B – Precedent Analysis** (as an Individual)
- **Part C – Programming Analysis** (as an Individual)
- **Part D – Site Analysis** (as a Team)



WEEK 1

PART A: RELIGION ANALYSIS

Analysis from Part A and Part B will be combined onto a single 24"x36" or larger board. After selecting an Abrahamic religious tradition of choice to study, each student will conduct an in depth graphical analysis. It should include the following items:

- Important elements about the religion's architectural history

- Major religious tenets, beliefs, concepts
- Important rituals to be performed in the religious structure
- Major ritual-architectural priorities important to the religion

PART B: PRECEDENT ANALYSIS

In order to help students understand the complex nature of religious building typologies, each student will perform an extensive precedent analysis for a sacred space within the religious tradition of their choice. The in-depth graphical study of a single religious building will be performed to identify its morphology of ritual-architectural priorities.

Three categories for ritual contexts within the scholar Lindsay Jones' framework will be used to guide these efforts. They include 1) theatre, 2) contemplation, and 3) sanctuary. Each type of ritual context has a level of allurement that either encourages participation or restricts access. The level of meaning and messages for each ritual context is also indirect as a backdrop or direct as an object of devotion, as indicated in the chart below. The student will follow a number of steps as outlined below to guide them in these efforts.

Meanings + Messages

Allurement		INDIRECT <i>(ambiance / backdrop)</i>	DIRECT <i>(object of devotion)</i>
	INCLUSIVE <i>(encourages participation)</i>	THEATRE	CONTEMPLATION
	EXCLUSIVE <i>(restricts access)</i>	SANCTUARY	CONTEMPLATION

STEP 1: Each student will begin their precedent analysis by asking the following “yes/no” questions about their building.

THEATRE

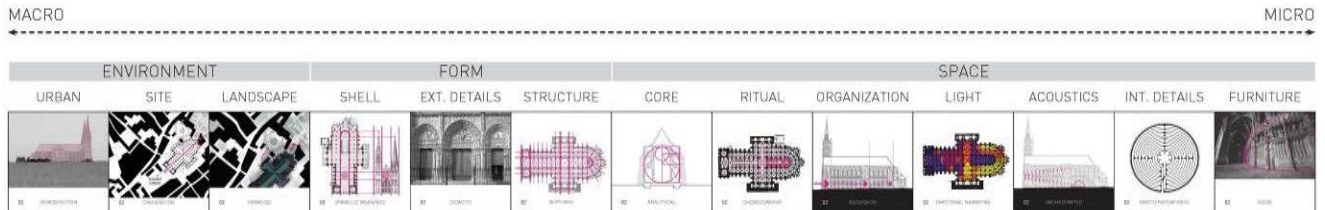
- ALLUREMENT: Does the design invite or encourage people to participate in the events? Does the design promote inclusivity? If “yes”, how?
- MESSAGES: Is the design meant to create an atmosphere or stage for ritual performance? Is the architecture function in an indirect way by taking a back seat? If “yes”, how?

CONTEMPLATION

- ALLUREMENT: Does the architecture or features help a person meditate or concentrate? Does the design promote inclusivity or exclusivity? If “yes”, how?
- MESSAGES: Does the architecture or features communicate messages or meanings? Does the architecture or features act in a direct way by becoming an object of devotion? If “yes”, how?

SANCTUARY

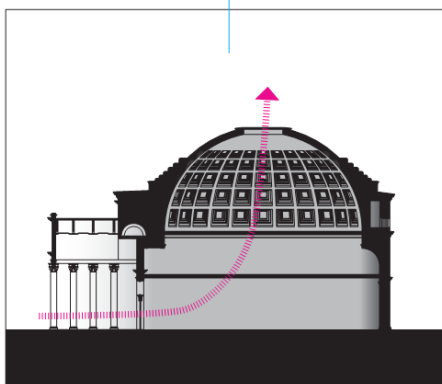
- **ALLUREMENT:** Does the building restrict its access in order to keep it separate and sacred? Does the design promote exclusivity? If “yes”, how?
- **MESSAGES:** Does the building communicate that it is a place of solitude, retreat, perfection, and/or refuge? Does the building function indirectly by becoming a backdrop or ambiance for ritual? If “yes”, how?



STEP 2: After asking the general “yes/no” questions from above, any question where the answer was “yes” will require further interrogation. The student will now look at the project holistically from macro to micro scale and ask the questions another time. This time the student will ask if their case study demonstrates the theatre mode on an urban scale or for the exterior form and shell of the building. Below is a matrix of key concepts to look for when asking this second set of questions.

Category	Key Concepts
Environment	
Urban	Hierarchy, Scale, Macro/Broader Context, Visibility/Prominence
Site	Micro/Immediate Context, Approach, Orientation, Building Placement on Site
Landscape	Terrain/Topography, Natural Features, Controlled Elements, Nature as Backdrop, Vegetation/Water
Form	
Shell	Silhouette/Outline, Massing, Façade Geometry, Openings/Fenestrations, Proportions
Exterior Details	Fixed Ornament, Non-Structural Elements, Texture/Materials, Sculpture, Painting
Structure	Grid, Additive/Subtractive, Columns, Buttresses, Planes, Walls
Space	
Core	Volume/Proportions, Overhead Planes, Spatial Geometry
Ritual	Program Distribution, Public/Private, Sacred/Profane, Ritual/Non-Ritual
Organization	Path/Narrative, Circulation, Spatial Sequence, Transitions/Thresholds, Progression/Gradation, Elevated Planes/Levels
Light	Daylight Factor/Levels, Filtered Light (Colors), Solstice/Equinox, Qualities
Acoustics	Sound Reverberation, Noise Control, Sound Absorption, Music Performance, Sound Distribution/Diffusion
Interior Details	Non-Structural Elements, Fixed Ornament, Floor Paving, Ceiling Décor, Sculpture, Painting, Art, Texture/Materials, Rood Screens/Rails, Curtains/Veils
Furniture	Moveable Elements, Fixed Features, Chairs, Altars, Benches, Pulpit, Lectern

DIAGRAM
Graphical Analysis



STEP 3: After the student’s second round of interrogation by asking the questions for each macro to micro category, the student will proceed to perform graphic analysis. Each category above that possesses some element reinforcing one of the types of ritual contexts should be diagrammed to illustrate the findings. This diagram could take place in plan, section, elevation, exploded axonometric, isometrics, photographs, etc.

STEP 4: Once your diagrams are produced you will assemble the information in a large graphic matrix on your presentation board like the one below.

		ENVIRONMENT			FORM			SPACE						
		URBAN	SITE	LANDSCAPE	SHELL	EXT. DETAILS	STRUCTURE	CORE	RITUAL	ORGANIZATION	LIGHT	ACOUSTICS	INT. DETAILS	FURNITURE
CHARTRES	THEATRE													
	ALLUREMENT													
	MESSAGES													
	CONTEMPLATION													
SANCTUARY	ALLUREMENT													
	MESSAGES													
	CONTEMPLATION													
	ALLUREMENT													

Required Reading

To guide each student in the above efforts, they are required to read: "An Expanded Morphology of Ritual Architectural Priorities," in Lindsay Jones, *The Hermeneutics of Sacred Architecture: Experience, Interpretation, Comparison*. 2 vols, Religions of the World (Cambridge, MA: Harvard University Press, 2000), 2:295-332.

SACRED ARCHITECTURE PRECEDENTS

Each student must select a religious precedent to study and analyze per the steps outlined above. The building should pertain to the religion that the student has selected. This may include but is not limited to the following buildings.

- Shrine of Our Lady of Guadalupe, La Crosse, Wisconsin
- Chapel of the Holy Cross, Tampa, Florida
- Christ Chapel, Hillsdale, Michigan
- Saint Paul the Apostle, Spartanburg, South Carolina
- Thomas Aquinas College Chapel, Santa Paula, California
- All Saints Church, Covington, Kentucky
- Saint Patrick, Fredericksburg, Virginia
- Sacred Heart Cathedral, Knoxville, Tennessee
- Corpus Christi, Aldie, Virginia
- Saint Mary of Sorrows, Fairfax, Virginia
- Dominican Sisters of St. Cecilia, Nashville, Tennessee
- Saint Thomas Aquinas Chapel, University of Nebraska, Lincoln
- Saint Mary Help of Christians Catholic Church, Aiken, South Carolina
- National Cathedral, Washington, D.C.

- Basilica of the National Shrine of the Immaculate Conception, Washington, D.C.
- Baltimore Basilica, Baltimore, Maryland
- St. Peter's Basilica, Rome, Italy
- Cathedral-Basilica of Saint Louis, New Orleans, Louisiana
- St. Patrick's Cathedral, New York City
- Eldridge Street Synagogue, New York City
- Great Synagogue of Rome, Italy
- Modena Synagogue, Modena, Italy
- Moscow Choral Synagogue, Russia
- Temple B'nai Israel Natchez, Mississippi
- Great Synagogue of Florence, Italy
- Congregation Beth Elohim, Brooklyn, New York
- Lloyd Street Synagogue, Baltimore, MD
- B'nai Israel Synagogue, Baltimore, MD
- KAM Isaiah Israel, Chicago, IL
- Sokollu Kadirga Complex, Istanbul
- Suleymaniye Complex, Istanbul
- Islamic Center of Washington, Washington, D.C.
- The Assalam Center of Boca Raton, Florida
- Dar al-Islam, Abiquiu, New Mexico

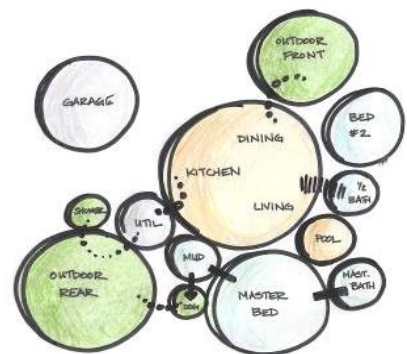
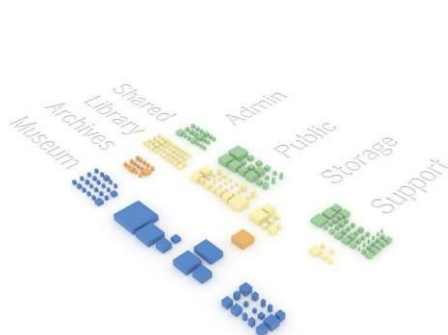
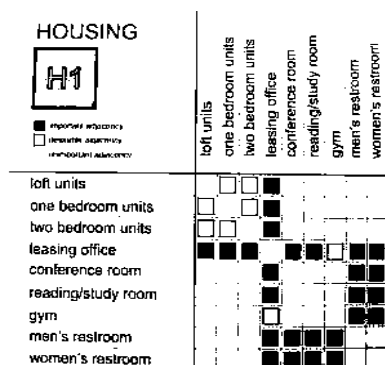
WEEK 2

PART C: PROGRAM ANALYSIS

Upon choosing a religious tradition, each student will begin programming the spaces of their building independently to identify important adjacencies. **This analysis will be compiled on 11x17 sheets and will include the following:**

- **Adjacency matrix** - summarize adjacency and issues. Include square footage breakdown.
- **Bubble diagram** - showing potential relationships between program spaces.
- **Space Size / Usage Matrix** - 3D diagram showing relative sizes of program organized by usage. This should be created in whatever software the student plans to use for design (Sketchup, Revit, Cad, etc.)

See the “program” section in the “design brief” for more details.



PART D: SITE ANALYSIS

Two teams of 5-6 people will analyze the site and context for one of two possible sites as outlined in the design brief. The analysis can be

conveyed in a number of ways using plans, sections, elevations, diagrams, photographs, drawings, etc. **Each team's research will be compiled on a single 24"x36" or larger sheet and be comprised of the following items:**

- Graphical analysis of environmental conditions
- Photo documentation of historic and social context (buildings, architectural style, local materials, motifs, ornament, demographics, etc.)
- Graphically depict applicable building codes, zoning ordinances, and design guidelines

SITE MODEL

Each team will produce a shared class site model for their assigned site. Costs of the model will be divided among the entire class. The site model must meet the following requirements:

- 1" = 50' Scale
- Extents will include some of the surrounding site context outwards of up to 100 feet, such as streets, sidewalks, buildings, canals, trees, etc.
- Each site has significant topographical features which should be included in each model through a stacking technique.
- The immediate site from the property lines inward should be designed to be removable so each student's unique proposal can be inserted as a separate model.



RELATED READING/VIDEOS

PROGRAMMING

- Pena, William M. *Problem Seeking: An Architectural Programming Primer*. HOK.
- Hershberger, Robert G. "Planning-Predesign Services," in *The Architect's Handbook of Professional Practice*.

PRECEDENT ANALYSIS

- Ching, Frank. *Architecture: Form, Space, & Order*. 3rd ed. Hoboken, NJ: John Wiley & Sons, 2007.*
- Clark, Roger H., and Michael Pause. *Precedents in Architecture: Analytic Diagrams, Formative Ideas, and Partis*. 3rd ed. Hoboken, NJ: John Wiley & Sons, 2005.

JEWISH SACRED ARCHITECTURE

- *Tanakh: A New Translation of the Holy Scriptures According to the Traditional Hebrew Text*. Philadelphia: Jewish Publication Society, 1985.
- Holy Bible (KJV), *Exodus 25-27* – Mosaic Tabernacle (c.1461 BC)
- Holy Bible (KJV), *1 Kings 6-7* – Solomon's Temple (c.957 BC)
- Holy Bible (KJV), *Ezekiel 40-41* – Future Jerusalem Temple (c.586 BC)
- Branham, Joan R. "Vicarious Sacrality: Temple Space in Ancient Synagogues." In *Ancient Synagogues : Historical Analysis and Archaeological Discovery*, edited by Dan Urman and Paul Virgil McCracken Flesher, 319-45. Leiden, Netherlands: E.J. Brill, 1995.
- Gordon, Mark W. "Rediscovering Jewish Infrastructure: 2018 Update on United States Eighteenth and Nineteenth-Century Synagogues." *American Jewish Historical Society*, <https://www.ajhs.org/rediscovering-jewish-infrastructure>
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- Hamblin, William James, and David Rolph Seely. *Solomon's Temple: Myth and History*. New York: Thames & Hudson, 2007.
- Hayward, C.T. Robert. *The Jewish Temple: A Non-Biblical Sourcebook*. New York: Taylor & Francis, 2002.
- Levine, Lee I. *The Ancient Synagogue: The First Thousand Years*. New Haven: Yale University Press, 2000.
- Lundquist, John M. *The Temple of Jerusalem: Past, Present, and Future*. Westport, CT: Praeger, 2008.
- Madsen, Truman G. *The Temple in Antiquity: Ancient Records and Modern Perspectives*. Provo, Salt Lake City, UT: Religious Studies Center, Bookcraft, 1984.
- Patai, Raphael. *Man and Temple in Ancient Jewish Myth and Ritual*. 2d enl. ed. New York: KTAV Pub. House, 1967.
- Rosenthal, William A. *The American Synagogue in the Nineteenth Century*. Cincinnati: American Jewish Archives, 1982.
- Wischnitzer, Rachel. *Synagogue Architecture in the United States: History and Interpretation*. Philadelphia: Jewish Publication Society of America, 1955.

CHRISTIAN SACRED ARCHITECTURE

- Holy Bible (KJV), New Testament, *Revelation 21* – New Jerusalem (c.95 AD)
- Abbot Suger, *The Book of Suger, Abbot of Saint-Denis* (c.1144)
- Barker, Margaret. *Temple Themes in Christian Worship*. New York: T & T Clark, 2007.
- Bingham, Joseph. *Origines Ecclesiasticae: Or the Antiquities of the Christian Church*. Edited by Richard Bingham. 9 vols. London: William Straker, 1843.
- Doig, Allan. *Liturgy and Architecture from the Early Church to the Middle Ages*. Aldershot, England: Ashgate, 2008.

- Durandus, William. *The Symbolism of Churches and Church Ornaments* (1286). Excerpts reprinted in ????
- Krautheimer, Richard, and Slobodan Curcic. *Early Christian and Byzantine Architecture*. 4th ed, The Pelican History of Art. New York: Penguin, 1986.
- Lang, U. M. *Turning Towards the Lord: Orientation in Liturgical Prayer*. San Francisco: Ignatius Press, 2004.
- Lundquist, John M. *The Temple of Jerusalem: Past, Present, and Future*. Westport, CT: Praeger, 2008.
- Macaulay, David. *Cathedral*. PBS Broadcast by Unicorn Projects Inc. 1985. <https://youtu.be/MZpOd2pHiI0>
- McNamara, Denis. *How to Read Churches*. New York: Rizzoli International Publications, 2011. https://youtu.be/mBOoR15_bm8
- McNamara, Denis R. *Catholic Church Architecture and the Spirit of the Liturgy*. Chicago: Hillenbrand Books, 2009.
- McNamara, Denis R. *Catholic Church Architecture Video Series*. Liturgical Institute, 2012.
 1. Architectural Theology – <https://youtu.be/2PDWXMMgy9c>
 2. True Beauty – <https://youtu.be/-c3JWNZSrDI>
 3. Jewish Roots – <https://youtu.be/bLj2ivFh75M>
 4. Classical Architecture – https://youtu.be/MDpg_Chcgfi
 5. Decoration & Ornament – <https://youtu.be/hEi0aqNFpVw>
 6. Church Columns – https://youtu.be/CIw_zw-QCJk
 7. Images & Icons – <https://youtu.be/mxjgAP495-I>
 8. Rediscovering Liturgical Imagery – <https://youtu.be/CbbArAwwuYU>
 9. Architecture & Heaven – https://youtu.be/NNvGNdv_dp0
 10. Vatican II & Reform – <https://youtu.be/Rn79r6XumbE>
- “New Church Architecture,” Extraordinary Faith Episode 8, 2016. <https://youtu.be/QrK84xVgvN8>
- Ratzinger, Joseph Cardinal. *The Spirit of the Liturgy*. Translated by J. Saward. San Francisco: Ignatius Press, 2000.
- Seasoltz, Kevin. "The Christian Church Building." In *Transcending Architecture: Contemporary Views on Sacred Space*, edited by Julio Bermudez, 113-29. Washington D.C.: The Catholic University of America Press, 2015.
- Stroik, Duncan. *The Church Building as a Sacred Place: Beauty, Transcendence, and the Eternal*. Mundelein, IL: Hillenbrand Books, 2012.
- For Latter-day Saint sacred architecture resources, visit <https://brandonro.com/2019/08/11/latter-day-saint-sacred-architecture-a-reading-list/>

ISLAMIC SACRED ARCHITECTURE

- *Al-Qur'an*. Houston: Institute of Islamic Knowledge, 1997.
- Ardalan, Nader. "The Visual Language of Symbolic Form: A Preliminary Study of Mosque Architecture." In *Architecture as Symbol and Self-Identity*, edited by Jonathan G. Katz. Philadelphia: Aga Khan Award for Architecture, 1980.
- Bagby, Ihsan. "The American Mosque 2011: Report Number 2." Islamic Society of North America,

<http://www.hartfordinstitute.org/The-American-Mosque-Report-2.pdf>.

- Farouk-Alli, Aslam. "A Qur'anic Perspective and Analysis of the Concept of Sacred Space in Islam." *Journal for the Study of Religion* 15, no. 1 (2002): 63-78.
- Dakake, Maria Massi. "Sacred Land in the Qur'an and Hadith and Its Symbolic and Eschatological Significance." *The Journal of Scriptural Reasoning* 10, no. 1 (August 2011).
- Gaber, Tammy. "Gendered Mosque Spaces." *Faith & Form* 48, no. 1 (2015).
- Grube, Ernst J., and George Michell. *Architecture of the Islamic World: Its History and Social Meaning*. New York: Thames and Hudson, 1984.
- Hajj. Directed by Anisa Mehdi. Public Broadcasting Service, 2014. <https://video.alexanderstreet.com/watch/hajj>
- Kuban, Doğan. *Muslim Religious Architecture*. Edited by P. van Baaren, et al, Part I - the Mosque and Its Early Development. Leiden, Netherlands: E. J. Brill, 1974.
- Lundquist, John M. *The Temple of Jerusalem: Past, Present, and Future*. Westport, CT: Praeger, 2008.
- Mokhtar, Ahmed. "Design Standards for Muslim Prayer Facilities within Public Buildings " In *Leadership in Architectural Research: Proceedings of the 2009 Annual Research Conference of the Architectural Research Centers Consortium*, edited by Hazem Rashed-Ali and Shelley Roff, 163-69. University of Texas at San Antonio: ARCC, 2009.
- Strathearn, Gaye, and Brian M. Hauglid. "The Great Mosque and Its Ka'ba as an Islamic Temple Complex in Light of Lundquist's Typology of Ancient Near Eastern Temples." In *The Temple in Time and Eternity*, edited by Donald W. Parry and Stephen D. Ricks, 275-302. Provo, UT: FARMS, 1999.

COMPARATIVE STUDIES

RITUAL, RELIGION, SACRED SPACE

- Bermudez, Julio, and Brandon Ro. "Extraordinary Architectural Experiences: Comparative Study of Three Paradigmatic Cases of Sacred Spaces, the Pantheon, the Chartres Cathedral and the Chapel of Ronchamp." In *Ambiances in Action: Proceedings of the 2nd International Congress on Ambiances*, edited by Jean-Paul Thibaud and Daniel Siret, 689-94. Canadian Centre for Architecture, Montreal, Canada: International Ambiances Network, 2012.
- Vitruvius, *Ten Books of Architecture*, Bk 3. "On Symmetry: In Temples and in the Human Body" (c.25 BC)
- Eliade, Mircea. *The Myth of the Eternal Return or, Cosmos and History*, Bollingen Series, 46. Princeton, NJ: Princeton University Press, 1974.
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THEORY OF SACRED ARCHITECTURE

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- Barrie, Thomas. *Spiritual Path, Sacred Place: Myth, Ritual, and Meaning in Architecture*. Boston: Shambhala, 1996.
- Bermudez, Julio, ed. *Transcending Architecture: Contemporary Views of Sacred Space*. Washington, DC: Catholic University of America Press, 2015.
- Bermudez, Julio. "Amazing Grace. New Research into 'Extraordinary Architectural Experiences' Reveals the Central Role of Sacred Places." *Faith & Form* 42, no. 2 (2009): 8-13.
- Britton, Karla C. *Constructing the Ineffable: Contemporary Sacred Architecture*. New Haven, CT: Yale School of Architecture, 2010.
- Pallasmaa, Juhani. "Light, Silence, and Spirituality in Architecture and Art." In *Transcending Architecture: Contemporary Views on Sacred Space*, edited by Julio Bermudez, 19-32. Washington, DC: Catholic University of America Press, 2015.
- Pallasmaa, Juhani. "Aura of the Sacred." Lecture presented at the Aboagora Symposium on 14-16 August 2012. <https://youtu.be/sk7SA2lwz5A>

- Turner, Harold W. *From Temple to Meeting House: The Phenomenology and Theology of Sacred Space*. Hague, Netherlands: Mouton, 1979.
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